

REMARKS

In view of the above amendments and the following remarks, further examination and reconsideration of the rejection in the Office Action of August 5, 2008 are respectfully requested.

The specification and abstract have been carefully reviewed and revised to make grammatical and idiomatic improvements in order to aid the Examiner in further consideration of the application. The amendments to the specification and abstract are incorporated in the attached substitute specification and abstract. No new matter has been added. Also attached hereto is a marked-up version of the changes made to the specification and abstract by the current amendment. The attachment is captioned “**Version with Markings to Show Changes Made.**”

In item 3 of the Office Action, claims 20-37 are rejected under 35 USC § 103(a) as being unpatentable over McReynolds (US 6,191,043) in view of Collins et al. (EP 0472 941). This rejection is respectfully traversed for the reasons below, and its withdrawal is respectfully requested.

Claim 20 recites a plasma etching method using an etching gas which includes a fluorine compound gas and a rare gas *and* which supplies electricity having a frequency that is equal to or more than 27 MHz to the etching gas. The present invention as recited in claim 20 is not disclosed in the prior art of record, and no obvious interpretation of McReynolds in view of the prior art of record would have resulted in the present invention.

The present invention allows etching of a trench in a substrate while significantly inhibiting the occurrence of side etching (for example, see paragraph 28 of the specification). An unexpected synergy results from combining an etching gas which includes a fluorine compound gas and a rare gas with supplying electricity having a frequency that is equal to or more than 27 MHz to the etching gas (for example, see paragraph 40 of the specification), which is critical to the present invention and which results in forming a trench in the substrate while substantially inhibiting side etching. McReynolds broadly discloses many types of etching gases which may be excited to the plasma state by a radio frequency (see column 4, lines 21-23). Collins discloses various frequency ranges. It would not have been obvious in view of the prior art of record to *specifically* choose an etching gas which includes a fluorine compound gas and a

rare gas *and* which supplies electricity having a frequency that is equal to or more than 27 MHz to the etching gas.

Thus, it is respectfully submitted that claim 20 is allowable over the prior art of record, as are claims 21-34 depending therefrom.

Claim 35 recites a plasma etching method wherein an accuracy of an etching depth is increased by lowering an etching rate more, as compared to when gas except tetrafluoroethane (CF₄) gas is used as the fluorine compound gas. This limitation is not disclosed in the prior art of record, nor was the prior art of record specifically asserted to disclose this limitation in the Office Action.

Thus, it is respectfully submitted that claim 35 is allowable over the prior art of record, as are claims 36 and 37 depending therefrom.

In view of the foregoing amendments and remarks, it is respectfully submitted that the present application is clearly in condition for allowance. An early notice thereof is earnestly solicited.

If, after reviewing this Amendment, the Examiner feels that there are any issues remaining which must be resolved before the application can be passed to issue, it is respectfully requested that the Examiner contact the undersigned by telephone in order to resolve such issues.

Respectfully submitted,

Mitsuhiro OKUNE et al.

/Aldo A. D'Ottavio/

By: 2008.11.05 11:14:58 -05'00'

Aldo A. D'Ottavio
Registration No. 59,559
Agent for Applicants

AAD/JRF/kh
Washington, D.C. 20006-1021
Telephone (202) 721-8200
Facsimile (202) 721-8250
November 5, 2008